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ABSTRACT

This paper presents strategies for designing and implementing new and more effective approaches to school-finance structures. The first section discusses state school-finance systems, their inadequacies, and how they have changed dramatically in several states. It explores how varieties of standard school-finance formulas may actually exacerbate fiscal disparities and suggests that fiscal inequities have become an outdated problem in school finance. The second section claims that a new "driving problem" must structure a discussion of school-finance policy in the future, proposing that this problem should determine the level of funding needed to help both average and special-needs students to reach high standards. This section demonstrates how school-finance structures could be reengineered to accomplish this goal, thus shifting school-finance-policy analysis away from fiscal equity and toward educational adequacy. Section 3 details several elements of a new school-finance system, such as school-based performance incentives, that could be created to enhance the performance of schools. This section outlines why a new federal role in school finance might be needed to ensure that all schools have an adequate level of funds to educate their students to high performance standards. (Contains 90 references.) (RJM)

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CPRE Occasional Paper

Improving State School Finance Systems: New Realities Create Need to Re-Engineer School Finance Structures

Allan Odden

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OP-04

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Biography

Allan Odden, CPRE's Co-Director for the School Finance Program Area, is Professor of Educational Administration in the School of Education at the University of Wisconsin-Madison. Odden is one of the nation's pre-eminent school finance experts. He is also a national expert in education policy, school-based management, and teacher compensation. He co-directed CPRE's Finance Center from 1990-1996. Previously, Odden was a professor in the University of Southern California's School of Education. His most recent books include *Education Policy Implementation* (1992), *School Finance: A Policy Perspective* (1992, with Lawrence O. Picus), *Rethinking School Finance: An Agenda for the 1990s* (1992), *Educational Leadership for America's Schools* (1995, with Eleanor Odden), *Paying Teachers for What They Know and Do* (1997, with Carolyn Kelley), and *Financing Schools for High Performance: Strategies for Improving the Use of Educational Resources* (1998, with Carolyn Busch).

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Executive Summary

School finance is at a crossroads. The traditional focus on fiscal disparities across school districts within a state might no longer be the most salient school finance issue in an era in which the primary education goal nationally and within every state is to teach students well enough to meet new rigorous performance standards.

First, the focus on spending differences across districts is only about money. Yes, extensive differences caused largely by widely varying property tax bases across districts have been unfair historically. But school finance programs designed to remedy this tax base problem have not been very efficient in reducing spending differences, nor in reducing the linkages between spending and wealth. Indeed, in many states today that have new school finance programs, there are still significant spending differences and those differences are still strongly tied to local wealth. Further, the potential for new school finance programs to raise spending in many low-wealth districts often has been passed over by those districts in favor of low school tax rates instead. In short, the traditional strategies for reducing spending differences across districts caused by variations in the local tax base have not worked very well. Further, such a policy focus, at best, addresses issues of fiscal fairness, but it does not address the more substantive issues of student performance and how to use resources more effectively to boost student achievement.

Given that the driving education goal across the country is to teach students to high standards, the new focus of school finance should be on this agenda. The goal should be first to determine a spending base that is "adequate" to fiscally support an education program that can teach the average student to those standards, and second, it should determine how to use those resources to produce results. This suggests a foundation type of school finance program.

Because some students require more services to reach those standards, the foundation base should be augmented by an extra amount of money for at least three major categories of students—those from low-income backgrounds, the disabled, and those who need to learn English. Research shows that an extra $1,000 for each student from a low-income background is about the level needed for that category of student. Research also shows that it costs about an extra 130 percent to serve all disabled students. Additional research needs to be conducted to determine appropriate augmentations for non-English speaking students.

All dollar figures should be adjusted by an education price index to ensure equal purchasing power of the education dollar.

In short, the new type of school finance structure that aligns the finance system with the policy system goal of teaching students to ambitious proficiency standards would consist of five elements:

- A base spending level that would be considered "adequate" for the average child;

- An extra amount of money for each child from a low-income background, approximately $1,000 in a combination of federal Title I and state compensatory education dollars;
- An extra 130 percent for each disabled student;
- An extra amount for each student who needs to learn English; and
- A price adjustment for all dollar figures to ensure comparable spending power.

Alternatively, the structure could include just a foundation level and an overall "cost" adjustment that would reflect varying student needs, education prices, scale economies or diseconomies, and efficiency. But, additional economic research is needed to implement with confidence such a holistic cost-adjustment approach.

Although the foundation base level of spending might be approximated by the median spending level in many states, in many other states—particularly those in the South and West—the median would be insufficient. Preliminary research suggests that the national median is the lowest level of current spending that would approximate an "adequate" spending level. Thus, the foundation base might be set at the national or state median, whichever is higher. Implementing this approach, however, would require a new federal role in school finance; one that is focused on those states that cannot or do not now provide a level of fiscal resources for education that would allow their schools to select and implement a school-wide strategy robust enough to teach their students to high and rigorous performance standards.

On top of these foundation elements, school finance systems could be strengthened by performance enhancement elements. Three major elements are suggested:

- Providing school sites with substantial control over their resources so they can reallocate funds to the needs of more effective, higher-performing school strategies;
- Changing teacher compensation to provide salary increases for the knowledge, skills, and competencies teachers need to teach a more rigorous curriculum and to engage in the required school restructuring and resource reallocation actions; and
- Using school-based performance incentives that provide monetary rewards for schools that consistently improve student achievement from one year to the next.

In sum, school finance systems are aging and in need of change. The traditional focus on fiscal equity needs to give way to the issue of adequacy, and education programs and finance systems need to be re-engineered to contain strategies that allow and stimulate schools to teach students to high standards. Though the details of all elements of such a strategy are not completely known, many are, and states should move as quickly as possible to design and implement these new and more effective approaches to school finance structures.

Introduction

In a recent article on state school finance systems, CPRE researchers Allan Odden and William Clune (1998) argue that state school finance systems are "aging structures in need of renovation." They identify and discuss several reasons for that assertion—primarily, the ineffectiveness of such systems for improving fiscal equity across districts over the past several decades—and they make several concrete suggestions for how such systems could be strengthened. They also argue that state school finance structures are not aligned with current standards- and school-based education reforms, particularly reforms that focus on teaching students to high standards. Odden and Clune address the need for performance incentives and recommend three key programs.

In parallel lines of analyses, several economists new to school finance issues also identified the faults of state school finance systems (Downes & Pogue, 1994; Duncombe, Ruggiero & Yinger, 1996; Ladd & Yinger, 1994; Ruggiero, 1996). Responding to these critiques, CPRE economist Andrew Reschovsky has been researching various remedies to school finance problems from these perspectives (Reschovsky, 1996; Imazeki & Reschovsky, 1998). In short, state school finance systems are coming "under attack," not just because they are failing to do the job for which they were created, but because these old systems are inadequate both for current finance problems and for the ambitious education and education finance challenges that states face at the dawn of the 21st century.

This paper elaborates on these latter inadequacies and recommends short-term changes that states can make to their school funding structures in order to accommodate the more fundamental and long-term changes proposed by Odden, Clune, and Reschovsky. The paper is divided into four sections. The first shows how the nature of school finance inequities has changed dramatically in several states and demonstrates how the solutions of standard school finance formulas in such contexts actually exacerbate fiscal disparities. This section suggests that fiscal inequities, which have been the focus of school finance policy throughout this decade, have become a somewhat dated policy problem in school finance.

The second section of this paper argues that a new "driving problem" must structure a discussion of school finance policy in the future, and it proposes that this "problem" rests in determining the level of funding needed to teach both average and special needs students to high standards. It then demonstrates how school finance structures could be re-engineered to accomplish this goal, thus shifting school finance policy analysis away from fiscal equity and toward educational adequacy.

Section three discusses several elements of a new school finance system that could be created to enhance the performance of schools: getting lump sum budgets to school sites (strategies that also would position the system to fund public school choice, charter schools, contracts, and other school-based policy initiatives); changing teacher compensation to connect directly with actual measures of knowledge and skills (rather than education units, degrees, and seniority);

and using school-based performance incentives.

Because teaching students to high, common standards is a national education goal, the last section of this paper also raises the issue of school financing from a national perspective and shows anew why the focus on within-state education finance policy may no longer be appropriate given the evolving national goal of teaching students to common standards. This section outlines why a new federal role in school finance might be needed to ensure that all schools have an adequate level of funds to educate their students to high performance standards.

Traditional School Finance

Academic and policy conversations about school finance inequities today and in the past have generally focused on traditional issues. The traditional "problem" was that base spending per pupil—that is, spending exclusive of resources for special student needs and/or price differences across districts—varied substantially across districts. The disparities in base spending per pupil did not stem from differences in local tax efforts or from local support for education, but from large differences in the property tax base per pupil.

In designing locally administered school systems, states generally gave local governments the authority to raise money for schools by levying property taxes. But when states determined school district boundaries, districts ended up with widely varying levels of property wealth per pupil and thus large differences in the ability to raise local dollars to support public education. Districts with above-average property tax bases per pupil traditionally were able to spend at above-average levels with below-average tax rates, while districts with below-average tax bases spent at below-average levels even with above-average tax rates.

School finance policy debates throughout the twentieth century, including most school finance texts (see, for example, Guthrie, Garms, & Pierce, 1988; Odden & Picus, 1992, Chapter 1; Swanson & King, 1997) and most court cases (Underwood, 1995), focused on these types of fiscal inequities. To be sure, some individuals pointed to spending differences per se, regardless of whether they were related to varying tax bases, and argued that they should be impermissible in a state education system (Wise, 1968). But the bulk of discussion centered on the links between spending differences and local property wealth per pupil (see also Coons, Clune, & Sugarman, 1970).

Table 1 is an example of these phenomena. These data reflect the school finance situation of school districts in a northeastern state around 1978. The data are organized by "deciles" with decile 1 being the poorest or lowest category in property wealth per pupil and decile 10 being the wealthiest. (There are different numbers of districts but approximately equal numbers of students in each decile.) Property wealth per pupil varied by a factor of almost 10-to-1 between the poorest and richest deciles. More important, tax rates also varied by decile, but the highest tax rates were in the poorest deciles and the lowest tax rates were in the highest deciles. Indeed, the inverse

Table 1
Status of School Finance in a Northeastern State, Late 1970s

Decile	Revenues (per pupil)	Assessed Value Per Pupil (at market value)	Local Property Tax Rate (percent)	State Aid (per pupil)
1	$2,094	$36,670	3.04	$978
2	2,215	46,845	2.83	888
3	2,277	55,203	2.69	794
4	2,281	64,875	2.56	620
5	2,322	71,762	2.44	572
6	2,405	81,913	2.35	477
7	2,601	92,949	2.33	437
8	2,718	106,195	2.17	411
9	3,033	135,496	1.95	388
10	3,593	306,766	1.05	366

Horizontal Equity
Coefficient of Variation: *12.3*
McLoone Index: *0.96*
Fiscal Neutrality
Correlation: *0.97*
Wealth Elasticity: *0.20*

Source: CPRE analysis of state data.

relationship between tax rate and local property wealth per pupil was very consistent—the higher the property wealth per pupil, the lower the tax rate.

As a result, spending per pupil also varied substantially. State aid only modestly offset the large property-wealth advantages. The spending differences reflected a direct relationship with property wealth per pupil—the higher the property wealth per pupil, the higher the spending despite the fact that the tax rates were lower. In statistical terms, the coefficient of variation of spending per pupil was 12.3 percent and the McLoone Index was 0.96. The correlation between spending and wealth was high at 0.97, with an equally high elasticity of 0.2.

This example shows the inherent inequity of traditional school finance systems. The data

reflect the school finance reality in most states for most of the twentieth century. Spending per pupil varied significantly, was inversely linked to tax effort, and was strongly linked to the size of the local property tax base per pupil. The system was structurally unfair. Low property-wealth districts were doubly disadvantaged—they not only had high tax rates but also had low education expenditures and a lower quality education program. High property-wealth districts were doubly advantaged—they had both low tax rates and high education expenditures and, in most cases, a higher quality and more attractive education program. Although the strength of the connection between spending and education quality was debated, most policymakers and policy analysts admitted some connection and viewed the overall structure as unfair.

The underlying problem was seen as the inequality of property wealth per pupil. The way to remedy the problem was to make the ability to raise funds for schools more equal across districts. In school finance parlance, the solution was to enact a guaranteed tax base (GTB) or "district power equalizing" program, i.e., a program that guaranteed to all or nearly all districts—rich or poor—some high-level tax base. Such a program would allow local districts to tap the same size tax base and, by setting a tax rate, to determine the level of spending. In this way, districts could determine for themselves the quality level of the local education program, rather than being constrained by the circumstance of being a low-wealth district. The tax rate would be applied to the statewide GTB so the same amount of money per pupil would be raised from state and local sources for both poor and rich districts, i.e., for all districts with a local tax base equal to or less than the GTB. In such a program, higher spending per pupil would require a higher tax rate. Thus, differences in education spending per pupil might remain, but spending differences would result from varying tax rates, reflecting differing levels of commitment to education; these differences would not be caused by the unequal distribution of the local tax base.

Most analysts suggested that the GTB should be set at a very high level, say the average of Decile 9 or $135,000 (see Table 1). This would allow all districts below that level of wealth to spend at a level of $3,375 if they levied the average tax rate of 2.5 percent (2.5 percent times $135,000). Such a program would allow poor districts—districts with a low level of property wealth per pupil—not only to reduce their local tax rates but also to substantially raise their education spending! Conceptually, such a program would provide property tax relief to the higher taxing poor districts and also allow those districts to raise education spending. In short, a high-level GTB school finance program would remedy the core problem of school finance—the unequal distribution of the local property tax base.

Statistically, the anticipated results are reflected in Table 2, the simulated impact of a GTB at $135,000. The results show that spending is more related to tax rates than to property wealth per pupil. Spending disparities dropped, with the coefficient of variation declining from 12.3 percent to 4.7 percent and the McLoone Index rising from 0.959 to 0.964. In terms of the connection between spending and wealth, the simulated GTB program decreased the correlation

Table 2
Status of School Finance in a Northeastern State, Late 1970s with a GTB at $135,000

Decile	Revenues (per pupil)	Assessed Value Per Pupil (at market value)	Local Property Tax Rate (percent)	State Aid (per pupil)
1	$3,101	$36,670	2.30	$2,259
2	3,020	46,845	2.24	1,972
3	2,951	55,203	2.19	1,745
4	2,869	64,875	2.13	1,490
5	2,807	71,762	2.08	1,315
6	2,792	81,913	2.07	1,098
7	2,872	92,949	2.13	895
8	2,825	106,195	2.09	603
9	3,033	135,496	2.24	0
10	3,593	306,766	1.17	0

Horizontal Equity
Coefficient of Variation: *0.047*
McLoone Index: *0.96*
Fiscal Neutrality
Correlation: *0.28*
Wealth Elasticity: *0.02*

Source: CPRE analysis of state data.

coefficient from 0.97 to 0.28 and reduced the wealth elasticity from 0.20 to 0.02. These simulated impacts are similar to other empirical research on the short-term impacts of school finance reform in the late 1970s (Odden, Berne, & Stiefel, 1979).

Yet, even for the traditional school finance situation, some argued for just a foundation type of school finance program under the rationale that the state fiscal interest in education was to provide funding only for a minimal education program. Moreover, most states enacted foundation programs as their core school finance strategy (Gold, Smith, & Lawton, 1995). Such a program boosts the level of expenditure for the lower spending districts and perhaps provides them with property tax relief as well. But foundation programs often were set too low and, in

most cases, became out of date quickly; they were set at a specific dollar level and not adjusted annually for inflation. And the "new" type of school finance problem described below holds for many states with foundation equalization programs.

The New Nature of School Finance Differences and Why Traditional GTB Programs Are Inadequate

As is often the case in public policy, actual impacts over a longer period of time are difficult or even impossible to predict. This certainly has been true of school finance in many states. Three quite different states provide good examples. All three states enacted different versions of school finance reforms over the 1975-1995 time period. State A implemented a generous "reward for effort" GTB-type program in the late 1970s, but then changed it to a foundation-type program in the 1980s, so it represents a foundation school finance equalization approach. State B implemented a combination foundation-GTB program, which was continuously enhanced over those 20 years, so that in 1995, the GTB was set at the 95th percentile of property wealth per pupil, with a minimum tax rate that provided a minimum expenditure of just over $3,000 per pupil, and with the GTB providing aid up to the 90th percentile of spending. State C created and implemented a fully funded GTB-type program—with the largest element guaranteeing the property wealth per pupil of the district at the 93rd percentile—for spending up to about the 60th percentile of expenditure per pupil. So these states reflect the impact of three different types of school finance equalization programs: foundation, GTB, and combination foundation-GTB. To a greater or lesser degree, all three states deferred actual spending decisions to local districts.

Tables 3, 4, and 5 show the status of school finance in these three states in 1995, with the data organized by decile of spending from state and local sources per pupil, again excluding spending for special needs students.[1] The results do not reflect the anticipated impacts. There are still wide spending disparities and, whatever the core school finance equalization strategy, spending per pupil is still highly associated with property wealth per pupil—the higher the wealth, the higher the spending!

But the linkages between spending and tax rates have changed dramatically. In all three cases, although spending per pupil increases with property wealth per pupil, so does the local tax rate for schools. In all three states, the higher the tax rate, the higher the spending. Higher property-wealth-per-pupil districts have higher spending per pupil but also have the highest tax rates in the three states. Conversely, lower property-wealth-per-pupil districts still have lower spending per pupil but now also have the lowest tax rates.

What happened? First, overall spending per pupil increased in real terms in all three states: 122 percent, 144 percent, and 144 percent, respectively, from 1980 to 1995, using the consumer price index as the deflator (National Center for Education Statistics, 1998). Indeed, school finance reform generally has led to higher overall spending (Murray, Evans, & Schwab, forthcoming). But it seems that the new

Table 3
School Finance in State A, 1994-95
K-12 Districts

Decile	Revenues (per pupil)	Assessed Value Per Pupil (at market value)	Local Property Tax Rate (percent)
1	$2,987	$118,969	1.11
2	3,221	90,120	1.17
3	3,288	103,279	1.17
4	3,426	140,218	1.18
5	3,562	157,524	1.26
6	3,665	150,897	1.34
7	3,829	200,460	1.31
8	4,049	217,998	1.36
9	4,411	254,362	1.44
10	5,973	523,521	1.24

Horizontal Equity
Coefficient of Variation: *19.5*
McLoone Index: *.92*
Fiscal Neutrality
Correlation: *.90*
Wealth Elasticity: *.23*

Source: CPRE analysis of state data.

school finance programs, which would have let the lower property-wealth-per-pupil districts increase their spending to average or higher levels while also lowering their tax rates, were not used for that purpose. Rather, lower wealth districts appeared to use the potential of the higher tax base provided by the new programs primarily to lower their tax rates from an above-average to a below-average level. The data show that while lower wealth districts still tend to have below-average spending levels, they do so because they also have below-average tax rates. Although the high level GTBs in both states B and C would allow these lower wealth-per-pupil districts to spend at substantially higher levels with only modestly higher tax rates, the districts generally chose not to do so. They chose low tax rates that, in turn, produced low expenditure levels. In short, many of the low-wealth districts did not behave as anticipated when provided with a high

Table 4
School Finance in State B, 1994-95
K-12 Districts

Decile	Revenues (per pupil)	Assessed Value Per Pupil (at market value)	Local Property Tax Rate (percent)
1	$2,893	$103,238	0.60
2	3,042	126,874	0.61
3	3,130	140,313	0.63
4	3,258	157,754	0.63
5	3,400	207,211	0.67
6	3,632	220,635	0.70
7	3,922	251,595	0.83
8	4,219	280,519	0.86
9	4,687	312,488	0.89
10	5,343	386,903	1.07

Horizontal Equity
Coefficient of Variation: *20.4*
McLoone Index: *.91*
Fiscal Neutrality
Correlation: *.75*
Wealth Elasticity: *.32*

Source: CPRE analysis of state data.

GTB program. The same was true for low-wealth districts in the foundation program state.

The high-wealth districts also seemed to engage in unpredictable behavior. As these states implemented their school finance reforms over the past 20 years, it seems that the higher wealth districts, which had enjoyed both a spending and tax rate advantage, decided to maintain their spending lead but could do so only by raising their local tax efforts for schools. Yes, some of the exceedingly wealthy districts still can spend at a high level because of their very high wealth, but with the state guaranteeing the tax bases of the districts at the 90th to 93rd percentiles, a wealth advantage exists only for a small percentage of districts, and most of these

Table 5
School Finance in State C, 1994-95
K-12 Districts

Decile	Revenues (per pupil)	Assessed Value Per Pupil (at market value)	Local Property Tax Rate (percent)
1	$4,860	$164,138	1.36
2	5,188	179,004	1.45
3	5,310	147,378	1.48
4	5,350	180,601	1.50
5	5,468	172,183	1.53
6	5,569	195,932	1.55
7	5,713	196,185	1.59
8	5,962	196,601	1.73
9	6,231	222,376	1.84
10	6,828	351,184	1.74

Horizontal Equity
Coefficient of Variation: *9.87*
McLoone Index: *.95*
Fiscal Neutrality
Correlation: *.59*
Wealth Elasticity: *.14*

Source: CPRE analysis of state data.

have a wealth advantage just above what the state will guarantee. For the bulk of the districts in the top third of property wealth per pupil, therefore, higher spending is primarily produced by higher tax rates for school purposes, reflecting the desire of their taxpayers to provide a high quality and expensive education system.

Overall, spending disparities did drop in states that had court cases, and states responded with school finance reforms (Evans, Murray, & Schwab, 1997). But the decrease was modest, averaging between 16 and 25 percent depending on the statistical measure used.

In sum, the impact of new school finance systems did little to reduce fiscal inequities. Instead, the new programs led to overall increases in education spending, but during that process lower-wealth districts dropped

their tax rates to below the average and settled for below-average spending-per-pupil levels, while higher wealth districts maintained their spending advantage by raising their tax rates and thus their spending. The result was continued spending disparities, although this time driven more rationally by local tax-rate differences rather than by the accident of the maldistribution of the local property tax base. Only a modest change occurred in these states' fiscal equity statistics—those measuring spending disparities and those measuring the connection between spending and property wealth.

It should be noted that many economists predicted this behavioral response (Fastrup, 1997; Feldstein, 1975; Ladd, 1975; Ladd & Yinger, 1994; Reschovsky, 1994). GTB-type programs, and even foundation programs for some districts, lower the local "price" of spending on education. Rather than just tapping the local tax base at a high tax rate to spend an extra $100 per pupil, the district can tap the new program and increase that amount of spending at a much lower tax rate. When prices are lowered for desired commodities, such as education, people usually buy more of that commodity. So economic theory would predict increased education spending overall with school finance formulas that lower education "prices," which is what happened in these states. Second, research showed that the demand elasticity for education in low-property-wealth districts (which was also frequently low in average-household-income districts), was low, and the demand elasticity was high in higher-wealth, higher household- income districts, such as metropolitan suburban districts. Thus, it was not surprising that the lower wealth districts decided not to raise relative spending very much, while the higher wealth districts decided just the opposite.

To verify these negative conclusions about the efficacy of GTB programs to enhance fiscal equity, pure forms of GTB programs were simulated for these three states by setting the GTB at the 95th percentile of property wealth per pupil and providing GTB aid for all levels of spending. All of the equity statistics worsened—spending disparities widened and the relationships between spending and property wealth strengthened. More generous GTB programs are not what these states need to improve fiscal equity.

The New School Finance

Of course, improving fiscal equity might not be a salient issue in such states. In fact, delineating what the school finance "problem" is for these three states has created a major debate. Some argue that the continued existence of spending disparities and their relationship to local property wealth, whatever the causes, remain a problem. But if the "old" problem was the unequal ability to raise revenues to support public schools, and that problem is resolved by a high level GTB or another school finance reform, others say that the remaining spending differences are a matter of local taxpayer choice and reflect neither an inherent inequity nor a school funding problem. Another group argues that since education is a state function, spending differences (as a proxy for education quality) are a problem regardless of whether they are

caused by the unequal distribution of the property tax base or by local taxpayer choice. Still others focus on the spending of the "bottom half" of districts, arguing it should be increased.

The problem with all three of these arguments, however, is that they deal simply with money and largely on whether base funding is equal or not. They are not related to any other substantive education goal such as education quality or student achievement. Making this connection is the school finance challenge of today. As CPRE research in finance, policy, and school reform has shown quite clearly, the driving education issue today is raising the levels of student achievement, i.e., setting high and rigorous standards and teaching students to those standards (Smith & O'Day, 1991; Fuhrman, 1993; Massell, Hoppe, & Kirst, 1997). Research from cognitive science suggests that we know how to produce a much higher level of learning, or at least make substantial progress toward this goal (Bruer, 1993; Siegler, 1998). Given this knowledge, Linda Darling Hammond (1997) argues that learning to high standards should be considered a right for all children. Moreover, school finance litigation in many states has begun to stress adequacy issues over equity issues (Enrich, 1995; Heise, 1995).

Reflecting this student achievement goal, the education policy and program issues revolve around which curriculum, instruction, incentive, capacity development, organization, and management strategies are required to produce this ambitiously higher level of student performance. Also, what level of funding is required for these programmatic strategies? Though CPRE researchers Odden and Busch (1998) begin to address these broader finance issues in a new book, *Financing Schools for High Performance*, they focus mainly on district-to-school formula budgeting or ways to provide lump sum budgets to school buildings and the possibilities for school re-allocation of funds to higher performance programmatic strategies. The book alludes to the overall state school finance structure that would provide funding to districts but falls short of assessing and proposing new systems. That is the purpose of section two of this paper.

As both Odden and Clune (1998) and Imazeki and Reschovsky (1998) argue, the prime school finance "problem" today is linking school finance to the strategies needed to accomplish the goal of teaching students to higher standards. In new school finance parlance, the challenge is to determine an "adequate" level of spending. The task is to identify for each district/school the level of base spending needed to teach the average student to state standards and then to identify how much extra money each district/school requires to teach students with special needs—the learning disabled, those from poverty-level households and thus educationally deficient backgrounds, and those without English proficiency—to the same high and rigorous achievement standards. As Clune (1994a, 1994b) argues, this requires a shift in school finance thinking from "equity" to "adequacy."

Interestingly, in each of the three sample states discussed earlier, educators and policymakers recently have begun to raise the issue of school finance adequacy in

many ways. Some question whether the spending levels of the bottom half of all districts, i.e., those districts with just average or mostly below-average tax rates, are a problem. They question whether the tax rates are too low or whether those spending levels, even though they are below average, are "adequate" to teach their students to acceptable standards. Others attempt to calculate a state-supported spending level that can be linked to a specified level of student performance. For example, it will cost X dollars for 90 percent of students to meet or exceed state proficiency standards in core subjects. In a sense, this is a "back to the future" school finance objective because many foundation programs have sought to make this linkage throughout the century. Still, others have explored the degree to which any "adequate" spending level should be supplemented by additional money to provide extra resources to teach special needs students to high standards.

Determining an Adequate Spending Level

There are three major ways policymakers and policy analysts have attempted and are attempting to determine an adequate spending level: 1) identify a set of inputs and cost them out; 2) link a spending amount per pupil to a level of student outcomes; and 3) build a number from the bottom up by identifying the cost of school-wide programs that produce desired outcomes.

The input approach began nearly two decades ago when the Washington State school finance system was declared unconstitutional, and the top court required the state to identify and fund a "general and uniform" education program. In response, the state essentially identified the average staffing (teachers, professional support staff, administration, etc.) in a typical district and, using statewide average costs, determined a spending level. To a substantial degree, Washington State still uses this approach.

A more sophisticated input approach was the Resource Cost Model (RCM), created by Jay Chambers and Thomas Parrish (1994). Using groups of professional educator experts, the RCM first identified base staffing levels for the regular education program and then identified effective program practices and their staffing and resource needs for compensatory, special, and bilingual education. All ingredients were costed out using average price figures, but in determining the foundation base dollar amount for each district, the totals were adjusted by an education price index. This method was used to propose a foundation spending level for both Illinois and Alaska, but the proposals were never implemented.

Most recently, Guthrie et al. (1997) made a further advance on the professional input approach as part of a response to a Wyoming Supreme Court's finding that its state's finance system was unconstitutional. Guthrie and colleagues also used a panel of professional education experts. In identifying the base staffing level for typical elementary, middle, and high schools, however, they relied on the findings of the Tennessee STAR class size reduction study results to set a class size of 15 students in elementary schools (Finn & Achilles, 1990; Finn, 1998) and then used the panel to determine add-

itional resources for compensatory, special, and bilingual education. They too adjusted the dollar figures by a constructed price factor.

The advantage of all of these input approaches is that they identify a set of ingredients that an amount of dollars would be able to purchase in each school district, including additional resources for three categories of special needs students, all adjusted by a price factor. The disadvantage is that the resource levels are connected to student achievement results only indirectly or inferentially through professional judgment and not directly to actual measures of student performance.

The second approach to determining an adequate spending level attempts to remedy this key deficiency of the input approach by seeking to link a spending level directly to a specified level of student performance. Two procedures have been used. The first procedure determines a desired level of performance using state tests of student performance, then it identifies districts that produce that level of performance. From that group it selects those districts with comparable state average characteristics and calculates their average spending per pupil. Such studies have been conducted in Illinois (Hinrichs & Laine, 1996) and Ohio (Alexander, Augenblick, Driscoll, Guthrie, and Levin, 1995; Augenblick, 1997). Interestingly, in all three studies, the level of spending identified was approximately the median spending per pupil in the state.

The second procedure uses the economic "cost function" approach. This approach seeks to identify a spending-per-pupil level that is sufficient to produce a given level of performance, adjusting for the characteristics of students and other socioeconomic status characteristics of districts; this method, as discussed below, also can be used to calculate how much more is required to produce the specified level of performance by factors such as special needs of students, scale economies or diseconomies, input prices, and even efficiency. In CPRE research using Wisconsin data, Imazeki & Reschovsky (1998) identified an expenditure level that also was close to the median of spending per pupil. Similar cost function research has been conducted by others (e.g., Duncombe, Yinger, & Ruggiero, 1996). To be sure, these studies used different methodologies and had different definitions of "adequate" performance levels—in Wisconsin it was the average performance level, and in the other two states it was teaching at least 70 percent of students to state proficiency standards. But all studies sought to identify a spending level that was associated with a desired, substantive education result: student achievement to a specified standard. In general, that spending level was close to the respective state's median spending level.

The third approach to adequacy has been to identify the costs of a "high performance" school model—a school-wide design crafted specifically to produce desired levels of student academic achievement—and to determine a level of spending that would be sufficient to fund such a model. A current example of such new school finance thinking is the situation in New Jersey. For nearly a quarter of a century, the driving issue in the New Jersey school finance court cases was about money and whether all districts,

now just the 28 special needs urban districts, would have the same level of dollar resources as the high-wealth, high-spending suburban districts plus some additional money for the special needs of their urban students. For 1997-98, the Supreme Court ordered the state to provide that level of spending equality, which ensured $8,664 per pupil for every child. The Supreme Court also asked a remand court to work with the state and plaintiffs to identify supplemental programs for the extra needs of low-income urban students and to identify the costs of those programs. When the state proposed that the education problem of the students from special needs districts could be resolved by using the $8,664 to fund a proven effective school-wide program that included supplemental programs—specifically, the Success for All/Roots and Wings program—rather than provide more money, they were accused of trying to provide education reform "on the cheap." That level of money more than covered the requirements of that school design, which was specifically created for low-income minority students in urban school systems. In fact, the state not only picked one of the most expensive whole-school models (Odden, 1997; King, 1994), but because of the high level of funding, they also expanded every element of that model.

Although New Jersey is providing a base spending level that is above the median, its approach to re-engineering school finance to some adequate level is to start with a proven effective school-wide program. There are several other school-wide models being developed across the country, all with costs about equal to or less than Success for All/Roots and Wings (Odden & Busch, 1998). Early results suggest that they show promise for accomplishing the goal of teaching students to higher standards (Edison Project, 1997; Slavin & Fashola, 1998; Stringfield, Ross, & Smith, 1996). To determine a spending level more reasonable than the high level in New Jersey, Odden and Busch (1998) analyzed the costs of two such models—the Modern Red Schoolhouse and Success for All/Roots and Wings. Both had similar overall costs and required the national median expenditure per pupil to finance them.

Additional work is needed to identify "adequate" expenditure levels. Each approach discussed above has strengths and weaknesses, and none has been perfected. Any state would need to select one of the above approaches to determine what their level of adequacy would be. But at their core, these new approaches to school finance seek to link spending with student achievement results.

Simulating the Results of Providing an Adequate Fiscal Base

The adequacy approach to education finance suggests that a foundation program is the most salient of the school finance systems. Given the findings of several of the above approaches to adequacy, particularly the connection between adequate performance and median spending, a school finance system that requires all districts to spend at least at the median of state spending per pupil (i.e., a foundation program with the minimum spending set at the median) would reflect a strategy that begins to move the

system toward adequacy. Yes, research in every state would be needed to determine more explicitly what an "adequate" spending level would be, but ensuring that districts spent at least as much as the median would be a way for states to move forward on the school finance agenda of adequacy immediately.

Tables 6, 7, and 8 show the results of such a school finance system for the above three states, with districts ranked by assessed valuation per pupil. The foundation expenditure is set at the median per-pupil spending level in each state. Not only would such a program represent progress in providing an adequate level of funding, but

Table 6
Simulated Results of a Foundation Program in State A, 1994-95
(Foundation at median expenditure; minimum tax rate at average of first decile)

Decile	Revenues Per Pupil	Assessed Value Per Pupil (at market value)	Local Property Tax Rate (percent)	State Aid Per Pupil
1	$4,051	$57,811	1.20	$2,649
2	4,037	94,824	1.24	2,979
3	4,053	118,133	1.19	2,828
4	4,070	134,029	1.20	2,405
5	4,193	149,850	1.28	2,207
6	4,283	164,584	1.34	2,283
7	4,289	194,577	1.31	1,715
8	4,439	230,411	1.36	1,514
9	4,686	281,302	1.44	1,105
10	5,743	518,426	1.24	54

Horizontal Equity
Coefficient of Variation: *12.6*
McLoone Index: *1.00*
Fiscal Neutrality
Correlation: *0.89*
Wealth Elasticity: *0.12*

Source: CPRE analysis of state data.

also the programs would produce substantial improvements in fiscal equity. In all three states, both the statistical measures of spending disparities (coefficient of variation and McLoone Index) and the statistical measures of the linkage between spending and wealth (correlation and wealth elasticity) would decline. To work over time, the spending level would need to be adjusted for inflation each year to continue to provide an adequate spending base.

Of course, such a foundation program would allow districts and their schools to spend above the "adequate" level if they chose to do so. Since every district/school would

Table 7
Simulated Results of a Foundation Program in State B, 1994-95
(Foundation at median expenditure; minimum tax rate at average of first decile)

Decile	Revenues Per Pupil	Assessed Value Per Pupil (at market value)	Local Property Tax Rate (percent)	State Aid Per Pupil
1	$3,475	$90,061	.62	$2,838
2	3,483	119,834	.62	2,695
3	3,510	135,985	.64	2,614
4	3,540	152,277	.65	2,508
5	3,636	180,420	.69	2,210
6	3,659	211,850	.71	2,133
7	4,036	237,224	.83	1,942
8	4,121	253,733	.86	1,781
9	4,235	301,751	.89	1,575
10	4,963	503,063	1.07	1,362

Horizontal Equity
Coefficient of Variation: *12.5*
McLoone Index: *1.00*
Fiscal Neutrality
Correlation: *0.57*
Wealth Elasticity: *0.15*

Source: CPRE analysis of state data.

have sufficient base revenues to provide an adequate education program—a program that would teach its average students to prescribed state proficiency standards—the next issue, then, is whether an additional fiscal equalization formula would be needed.

Those focusing on fiscal equity might argue that if the system allows districts to spend above the adequate level, then the state should provide a GTB program to make the spending ability of districts more fair across all districts, rich or poor. Tables 9, 10, and 11 show the results of adding a second tier,

Table 8
Simulated Results of a Foundation Program in State C, 1994-95
(Foundation at median expenditure; minimum tax rate at average of first decile)

Decile	Revenues Per Pupil	Assessed Value Per Pupil (at market value)	Local Property Tax Rate (percent)	State Aid Per Pupil
1	$5,562	$106,905	1.38	$3,291
2	5,686	138,199	1.45	3,089
3	5,705	143,418	1.48	3,519
4	5,768	155,152	1.50	3,068
5	5,813	175,978	1.53	3,182
6	5,901	188,919	1.56	2,859
7	5,943	199,218	1.59	2,856
8	6,251	221,108	1.73	2,850
9	6,556	270,838	1.84	2,500
10	6,869	396,528	1.74	1,161

Horizontal Equity
Coefficient of Variation: *7.40*
McLoone Index: *1.00*
Fiscal Neutrality
Correlation: *0.61*
Wealth Elasticity: *0.12*

Source: CPRE analysis of state data.

90/90 GTB to this foundation program. The GTB was set at the 90th percentile of district wealth and provided aid to districts spending up to the 90th percentile of expenditures per pupil. The tables show two results from this addition. First, nearly all of the equity statistics worsen. Second, the extra state cost is considerable. Because these states represent the newer version of fiscal disparities (higher spending associated with

Table 9
Simulated Results of a Foundation Program with a 90/90 Second Tier GTB in State A, 1994-95
(Foundation at median expenditure; minimum tax rate at average of first decile, GTB at 90th percentile wealth provided for spending up to the 90th percentile)

Decile	Revenues Per Pupil	Assessed Value Per Pupil (at market value)	Local Property Tax Rate (percent)	State Aid Per Pupil
1	$4,183	$57,811	1.19	$2,787
2	4,251	94,824	1.24	3,193
3	4,136	118,133	1.19	2,912
4	4,156	134,029	1.20	2,491
5	4,368	149,850	1.28	2,381
6	4,521	164,584	1.34	2,522
7	4,608	194,577	1.31	2,035
8	4,891	230,411	1.36	1,967
9	5,053	281,302	1.44	1,471
10	5,743	518,426	1.24	55

Extra state cost over the foundation program: *$164.5 million*

Horizontal Equity
Coefficient of Variation: *15.6*
McLoone Index: *1.00*
Fiscal Neutrality
Correlation: *0.65*
Wealth Elasticity: *0.09*

Source: CPRE analysis of state data.

higher tax rates, both attributes associated with higher wealth), the equity results are not surprising.

For these states, the results show again that GTB programs, even on top of adequate foundation spending levels, simply worsen fiscal equity. The results suggest that GTB school finance elements simply should not be a primary part of state school finance systems. Nevertheless, many school finance experts, including this author (Odden &

Table 10
Simulated Results of a Foundation Program with a 90/90 Second Tier GTB in State B, 1994-95
(Foundation at median expenditure; minimum tax rate at average of first decile, GTB at 90th percentile wealth provided for spending up to the 90th percentile)

Decile	Revenues Per Pupil	Assessed Value Per Pupil (at market value)	Local Property Tax Rate (percent)	State Aid Per Pupil
1	$3,506	$90,061	.62	$2,869
2	3,517	119,834	.62	2,729
3	3,576	135,985	.64	2,679
4	3,616	152,277	.65	2,585
5	3,785	180,420	.70	2,305
6	3,842	211,850	.72	2,285
7	4,196	237,224	.84	2,091
8	4,347	253,733	.87	1,941
9	4,584	301,751	.92	1,761
10	5,250	503,063	1.10	1,528

Extra state cost over the foundation program: *$88:6 million*

Horizontal Equity
Coefficient of Variation: *14.10*
McLoone Index: *1.00*
Fiscal Neutrality
Correlation: *0.62*
Wealth Elasticity: *0.19*

Source: CPRE analysis of state data.

Picus, 1992; Odden & Busch, 1995), have for years recommended second tier GTB programs on top of foundation programs. Given the negative impact on fiscal equity as well as the considerable costs of such additions, those recommendations should be viewed skeptically in the future. Indeed, since a GTB simply assists districts to spend above an adequate level, one could argue that such a program, whatever its effects on fiscal equity, is beyond the state interest in

Table 11
Simulated Results of a Foundation Program with a 90/90 Second Tier GTB in State C, 1994-95
(Foundation at median expenditure; minimum tax rate at average of first decile, GTB at 90th percentile wealth provided for spending up to the 90th percentile)

Decile	Revenues Per Pupil	Assessed Value Per Pupil (at market value)	Local Property Tax Rate (percent)	State Aid Per Pupil
1	$5,594	$106,905	1.38	$3,323
2	5,798	138,199	1.45	3,202
3	5,901	143,418	1.48	3,715
4	5,935	155,152	1.50	3,235
5	6,035	175,978	1.53	3,403
6	6,291	188,919	1.55	3,252
7	6,648	199,218	1.59	3,571
8	6,846	221,108	1.73	3,445
9	7,716	270,838	1.84	3,660
10	6,970	396,528	1.75	1,250

Extra state cost over the foundation program: *$292 million*

Horizontal Equity
Coefficient of Variation: *16.9*
McLoone Index: *1.0*
Fiscal Neutrality
Correlation: *0.43*
Wealth Elasticity: *0.17*

Source: CPRE analysis of state data.

school finance, which is largely fulfilled by the adequate spending base.

Adjustments for Special Needs

If a second tier GTB is not recommended or justified, should the adequate foundation base be augmented by any additional finance elements? Yes. The foundation spending level is targeted to the "average" student, but some students will need extra help and thus more resources to achieve to high standards. So the foundation base should be augmented by additional elements related to the extra programmatic and financial needs of at least three categories of students—the disabled, those from lower-income households and thus educationally disadvantaged backgrounds, and those who need to learn English to a higher level of proficiency. This paper will address only an adjustment for low-income students and will briefly discuss an adjustment for disabled students.

Though some additional aid for the extra educational needs of low-achieving students from low-income backgrounds is provided by the federal Title I program, about two-thirds of the states also provide extra funding for low-income students (Gold, Smith, & Lawton, 1995). For both federal and state efforts, the long standing question is how much money per pupil needs to be provided by those programs. The answer requires specifying the level of achievement desired, the additional programmatic strategies needed to produce this achievement, and the costs of those programmatic strategies.

A program for which this type of analysis can be approximated is the Success for All/Roots and Wings program. It is one of the most successful school-wide strategies developed, and it includes a core curriculum designed to teach students to proficiency standards in reading, writing, mathematics, science, and social studies. There is considerable evidence of the effectiveness of this program, and it has been shown to be replicable across a wide range of schools and education systems (Slavin & Fashola, 1998). Its curriculum also can be aligned with most extant state/district content and performance standards. For purposes of discussion, let us assume that this program provides the types of extra services and strategies students from low-income backgrounds need to achieve at levels that meet rigorous proficiency standards.

Fortunately, the extra costs of this program have been identified. The minimum extra elements of this program for an elementary school of 500 students with nearly all the students from poverty backgrounds are:

- A school-wide instructional facilitator;
- Four reading tutors;
- A family liaison professional;
- About $30,000 for materials; and
- About $30,000 for professional development provided by the national network associated with this particular school design.

The ingredients include six extra professional staff positions and $60,000 for training and materials. Using national average prices, this would require the school to have an additional $360,000 (6 positions times $50,000 in salary and benefits for each, plus $60,000). This would be above core staffing of one principal, one teacher for every 25 students, appropriate additional teachers for preparation time, and art, music, and physical education. The costs would be increased if the district provided only a half day of kindergarten; in fact, the program strongly recommends a full-day kindergarten program, which would require two additional teacher positions raising the costs to $450,000. Roots and Wings/Success for All also strongly suggests that each student receive a preschool program, which could further increase the costs. Finally, some schools find that an additional tutor or two enhances the ability of the program to teach all students to high proficiency standards.

For illustrative purposes, assume that a program slightly above the minimum requirements is needed and that the additional costs of that version of the Roots and Wings/Success for All program is about $500,000. That would amount to $1,000 for every student in the school, which in this case would be every low-income student in the school. This would mean that in addition to the "adequate" foundation program, the state would need to provide an additional $1,000 for every low-income student, assuming that those extra dollars would be used to finance a strategy or set of strategies to teach all average students and all students from low-income backgrounds to state-set proficiency standards. Districts should be able to pool funds from both Title I and state compensatory education programs to provide this level of extra funding to each school.

Table 12 compares the cost of this enhancement to the foundation program, which provides an extra $1,000 for each student from a low-income background, to the costs of the 90/90 GTB program simulated above. The number of students eligible for free or reduced-price lunch is used to estimate the number of students

Table 12
Costs Above an "Adequate" Foundation Expenditure Base of a 90/90 GTB Versus an Extra $1,000 for Each Free/Reduced Price Lunch Student

State	Extra Costs of a 90/90 GTB	Extra Costs of Providing $1,000 for Each Free/ Reduced-Price Lunch Student
Illinois	$165 million	$165 million
Missouri	$88 million	$211 million
Wisconsin	$292 million	$281 million

from a poverty background. The data show that the cost of the extra $1,000 for each low-income student is substantial, but that in two states, it is just about equal to the cost of the second tier GTB. The numbers show that states could consider these additions to the foundation base as trade-offs. If a state has only $200-300 million more to spend above the foundation level, the question is whether it would be wiser to spend it on strategies to teach students from low-income backgrounds to high standards or strategies that let some districts spend above an adequate level for the average student. The former would seem to be the preferred choice.

A similar type of analysis would be needed for disabled students and students learning the English language. Research generally shows that disabled students on average, across all categories of disability, require an additional 130 percent of resources (Chaikind, Danielson, & Braven, 1993; Odden & Picus, 1992). Thus states could provide an extra 130 percent for each identified disabled student. An alternative emerging strategy is for the state to provide "census" funding for disabled students (Chambers, Parrish, & Hakido, 1996; Parrish, 1996); under this approach, the state determines the percentage of the student population that on average is disabled and provides an extra sum (say, 130 percent) for the number of such students in each school district.

Ideally, all dollar figures for such a new school finance structure—the base spending level and the adjustment for each of the three categories of students—also should be adjusted by an education price index to ensure that the dollar figures provide equal education purchasing power to districts and schools across the wide range of geographic regions and labor markets in a state. It turns out that the purchasing power of the education dollar—due to labor market and other community characteristics outside of the control of school officials—can vary by up to 40 percent between the lowest and highest price areas. Adjusting nominal dollar amounts by such a price index would ensure that each district/school received the same level of "real" dollar resources.

Fortunately, the National Center of Education Statistics (NCES) has developed different versions of such education price adjustments (Chambers, 1995; McMahon, 1994); any state could use these externally developed price adjustments. Although states have been reluctant to add education price adjustments to their school aid formulas, in part because developing them requires some complex econometric analyses and manipulations and in part because price adjustments "move" substantial money around, the existence of the NCES price indices would allow states to use a price adjustment factor that has been developed by the best experts in the country under the auspices of a neutral governmental body.

Thus, a new type of school finance formula, one providing an adequate fiscal base so schools can deploy an education program designed to teach students to high achievement standards, would consist of five elements:

- A base spending level that would be considered "adequate" for the average child, which in the short-term could be

approximated by the median expenditure level;

- An extra amount of money for each child from a low-income background;
- An extra amount for each disabled student;
- An extra amount for each student who needs to learn English; and
- A price adjustment for all dollar figures to ensure comparable spending power.

With such a school finance system, a state could reasonably say it financed the state's core interests in education. And if states were allowed to pool federal and state money for the above student categories, such a school finance system could also finance a large portion of the federal government's interests in education as well.

An Econometric Approach

Without going into details, Imazeki and Reschovsky (1998), and other economists (e.g., Downes & Pogue, 1994; Duncombe, Ruggiero, & Yinger, 1996; Ladd & Yinger, 1994; Ruggiero, 1996) have been pursuing a similar approach to re-engineering school finance systems, but one which would result in a somewhat simpler school finance structure. Technically, these economists are trying to construct a "cost function" for a state's education system. Simply put, a cost function would identify the level of funding needed to produce a certain level of output, such as student achievement, given different characteristics of schools and their students. In the CPRE work being conducted with Wisconsin data, Reschovsky has attempted to determine how much money a district with average demographic characteristics must spend to teach students to state average performance levels. In his analysis, he could have set the performance target at a higher level—say the 70th percentile—but so far his analysis has focused on average achievement levels. This amount of money reflects the "adequate" foundation base. From the results of the cost function, he then constructed an overall cost adjustment that accounts for:

- Different characteristics of students, specifically the percent of students from a low-income background (as measured by eligibility for free and reduced-price lunch), the percentage disabled, and the percentage with limited English proficiency;
- Different prices across school districts and labor market regions; and
- Economies and diseconomies of scale as measured by the number of students.

Put briefly, his research is attempting to construct an overall cost index that adjusts for differences in student need, price differences, and scale economies/diseconomies. Related work by others also attempts to adjust for efficiency differences (see for example, Duncombe, Ruggiero, & Yinger, 1996).

Although the research is state of the art and uses complex econometric statistical analyses and thus may seem complex to the non-economist, the "beauty" of the research is that two primary numbers are produced:

the expenditure level needed in the "average" or "typical" district/school and a cost adjustment that accounts for all other factors—student need, price, scale, and at some point, efficiency. Thus, the school finance formula would be a "cost adjusted" foundation program. The program would provide a base spending level, which for the Wisconsin data was $6,333 using 1996-97 data. The amount of money guaranteed to each district would be the foundation amount ($6,333) times the cost factor. In Wisconsin, the cost factor varied widely, from a low of 59 percent to a high of 200 percent. This means that given the above characteristics of schools, students, and districts, the average district required $6,333 to teach its students to average achievement levels, while the least needy districts/schools required only 59 percent of that, or $3,736 (lower than any district actually spends), and the most needy district required $12,666 (higher than the neediest district actually spends). And these amounts would be sufficient to produce the average achievement level. If Reschovsky had set the desired achievement level above the current average, the foundation dollar figure would have been higher.

Though more research of this type is needed, the point here is that its goal is very similar to the above proposed new type of school finance structure—identifying an adequate base foundation level of spending, which is then adjusted at least by student need and price factors and perhaps scale and efficiency factors as well. When research can be more definitive, school finance systems can then become more tightly linked to education goals—the state would know how much money is needed in each school to teach students to set state achievement standards.

Summary

This approach to re-engineering school finance would also be appropriate to districts that reflect the traditional school finance spending, wealth, and tax rate differences and relationships discussed in section one, or any other school finance reality (see Appendices A and B). Virtually all 50 states are pursuing a standards- and school-based education reform agenda with the goal of educating students to new and high achievement levels. School finance systems that just focus on the distribution of dollars make little sense in such an environment. A system such as the one suggested above, which over time can increasingly tighten the connections between funding and strategies to produce that achievement particularly at the school site level, is the type of funding system that most states want to pursue. Such an approach represents the cutting edge of re-engineering school finance to the purposes of standards- and school-based education reform, the objective of which is teaching all students, including low-income students, to high standards.

Additional Elements to Spur High Performance[2]

In addition to the basic new structure for state-to-district education financing, states also would be wise to consider adding several elements to their system to spur higher performance. Three are prominent: more school-based financing, changing teacher compensation to provide incentives to

continually improve professional expertise, and implementing performance incentives.

Move to More School-Based Financing

As Odden and Clune (1998) suggest, both the movement toward school-based management and other education policies that entail school site funding, such as choice and charters, require states to face the issue of school-based financing. The focus on the school, moreover, is not just a new element of education policy but also can be rationalized on the grounds of designing a high performance education system. Schools are the "unit of production" in the education system; schools are where teaching and learning occur. Thus, the increasing focus on the school site makes sense for a system trying to dramatically improve performance. And research on effective site-based management shows that when several elements are combined, school-based management can work to improve the instructional program and then student achievement as well (Joyce & Calhoun, 1996; Newmann, 1996; Odden & Busch, 1998, Chapter 2; Odden, Wohlstetter, & Odden, 1995; Robertson, Wohlstetter, & Mohrman, 1995; Smylie, Lazarus, & Brownlee-Conyers, 1996; Wohlstetter, Smyer, & Mohrman, 1994; Wohlstetter, Mohrman, & Robertson, 1996). The school focus has two major fiscal implications.

First, dollars need to be budgeted to the school site. A lack of budget control inhibits schools from successful restructuring (Bodilly, 1998). For this and other reasons, several countries have moved school-based formula funding to their education finance policy agendas (Ross & Levacic, 1998, forthcoming), and their experiences can be used to design effective approaches in U.S. states. England implemented such a policy in 1988 by requiring each of its local education agencies within a statewide fiscal framework to devise a specific, pupil-driven school-based financing formula. Drawing upon the English policy as well as the school-based financing system in Victoria, Australia, Odden and Busch (1998) show how such a strategy could be implemented by any state in the United States. As in England, Odden and Busch strongly suggest that each state create a framework that would guide districts in the macro aspects of how to create their specific school-based financing formulas. They also emphasize that a critical aspect of such a system is first deciding the key functions for the central office, providing a budget for those retained tasks, and then budgeting the remainder to schools via some type of pupil-weighted formula, particularly if the adequate level of funding is built up from the costs of an effective, school-wide program. Then states and districts need a mechanism to ensure that school sites receive that level of dollars so the schools can use the money for the unique needs of their designs. Odden (1998, forthcoming) shows how five districts in North America currently provide lump sum budgets to schools via quite sophisticated, pupil-weighted funding formulas.

Second, school-based financing would require adapting state and district fiscal and accounting systems to the site level. Conceptually, this simply would require gathering and reporting revenues and expenditures on a school-by-school basis (see Odden & Busch, 1997; Speakman, Cooper, Holsomback, Hunt, Sampieri, & Maloney, 1997). Such a strategy also would entail creating a fiscal information

system that could be accessed by each school site through an online, interactive computer system. The approach by Seattle, Washington is a good example of such a computer system (Odden, 1998; Seattle Website: http://sps.gspa. washington.edu/sps/). Victoria, Australia created such a structure in the first six months of its policy of school-based financing (Odden & Odden, 1996). The system Australia created also included an electronic invoicing and purchase order capability.

Reinvent Teacher Compensation

Teacher compensation also could change to further stimulate the education system toward higher performance. School organization, incentives, and teacher compensation can be more closely linked. However structured, compensation is the major formal extrinsic reward incentive in any organization including schools. The incentives imbedded in a compensation system, however, function best when they are aligned with the broader goals of the organization and when they directly reinforce those goals.

Kelley (1997) and Odden (1996) argue that since mid-century, and particularly in the current era of education reform, school organization and education goals have been changing in ways that could have been fortified substantially by changes in teacher compensation. Teacher compensation could have changed from the single salary schedule invented in the early part of this century, which provided salary increments based on the objective measures of years of experience and education units, to a single salary schedule that provided salary increments based on direct, sophisticated, and professional measures of teacher knowledge and skills (Odden & Kelley, 1997), particularly those skills needed to implement standards- and school-based education reform.

The specific design and focus of new approaches to compensation could vary dramatically (Odden & Conley, 1992; Conley & Odden, 1995; Mohrman, Mohrman, & Odden, 1996). The point is that teacher compensation comprises 50 percent of each education dollar that is spent, and there are new, substantive ways to alter teacher compensation to align it more closely with the norms and goals of current, standards-based education reform. A serious restructuring of school finance to enhance greater education system performance would add compensation reform to the agenda.

Such changes would require written descriptions of what accomplished teaching entails and rigorous assessments of individual teacher practice. Great progress has been made during the past ten years in developing these tools, including standards and assessments for beginning teachers (Dwyer, 1998; Moss, Schutz & Collins, 1998), and standards and assessments for more accomplished, experienced teachers (Bond, 1998; Jaeger, 1998). Considerable thought has been given to how such advances could be included in a restructured teacher compensation structure (Heneman & Ledford, 1998; Klein, 1998; Odden & Kelley, 1997; Milanowski, Odden, & Youngs, 1998; see also the Consortium for Policy Research in Education's website on teacher compensation—http://www.wcer.wisc.edu/cpre/).

Changes in compensation outside of education have helped to improve the performance of the organization in which they have been tried, have improved the individual salaries of the individuals on the teams in those organizations, and have improved working conditions (Heneman & Ledford, 1998; Jenkins, Ledford, Gupta, & Doty, 1992; Lawler, 1990; Murray & Gerhart, 1998). Early analyses suggests that such compensation changes could work similarly in education (Odden & Kelley, 1997).

Provide School-Based Performance Incentives

School-based performance incentives would also be part of a revised finance system. Such programs are controversial in education largely because they have been designed poorly in the past, providing individual rather than group awards and being eliminated by states after a year or two (Cornett & Gaines, 1992; Murnane & Cohen, 1986). But school-based performance awards could be formal, extrinsic elements that function as incentives for boosting increases in school-wide student achievement (Mohrman & Lawler, 1996; Rowan, 1996). In an organization like schools, however, as well as in most organizations in the private and public sectors today, performance awards are most appropriately provided to groups or all individuals within an organization (Lawler, 1990; Richards, Fishbein, & Melville, 1993).

If a new school finance system is designed explicitly to provide a base level of funds that has been determined to be "adequate" for teaching the average student to high standards, and if the system also provides the extra funds needed to teach special needs to that level, then it would seem reasonable, over time, to hold schools accountable for producing that level of results. At a minimum, it would seem appropriate to provide incentives to schools to continually show progress toward that goal. School-based performance awards are one strategy for implementing that objective.

The design of performance awards would need to be carefully considered, and much work is needed to identify alternative designs that work. Student achievement undoubtedly would be a core element of a performance measure, and states or districts would need a good test to serve as the basis for such an award. How to measure improved performance to ensure that the incentives function to encourage schools to boost the performance of all students, and to do so each year, are other thorny issues that need to be addressed. The standard—the amount of improved performance—that would qualify a school or team of teachers for the award is another issue; setting the standard as some type of rolling, historical average so that each school is measured against past performance is probably the most feasible. Designing the specifics is complicated and will require careful attention to numerous technical issues (Odden, Heneman, Wakelyn, & Protsik, 1996).

Finally, a stable funding pool for an effective performance award is another aspect that is critical to such an element of compensation. The tendency in the past has been to eliminate funding when dollars were scarce—a practice that erodes trust in the system and undercuts the incentive force of such a program. Current programs require about 1 to 2 percent of the operating budget; states or districts could set aside 1 to 2 percent of the total education

budget in a performance award trust fund to create a stable funding pool for such a program. Once built into the base, it could be replenished each year.

For the new types of school-based performance awards in education, research so far shows that they can work (Heneman, forthcoming; Kelley, forthcoming; Clotfelter & Ladd, 1996; Ladd, forthcoming). The programs help motivate teachers and principals to focus on how to improve student achievement: teachers and principals view the system's practice of setting performance improvement targets as a legitimate management prerogative, and given appropriate assistance and additional training, most teachers believe they can produce the improved student performance. Though more research is needed, these early results suggest that such initiatives, as part of a comprehensive, multi-faceted strategy to improve education, should be viewed in education as viable performance-enhancing initiatives like they are now viewed outside of education.

Re-Conceptualize School Finance Adequacy as a National Issue

Redesigning school finance to meet the needs of the national education reform goal of teaching students to high standards also will require a new look at finance issues from a national perspective, across state boundaries. Nearly all analyses of either school finance equity or school finance adequacy have been conducted using within-state data. But this within-state approach is deficient in addressing either the issue of fiscal disparity or the issue of fiscal adequacy. Both Murray, Evans, and Schwab (forthcoming) and Odden and Busch (1998) show that the vast majority—two-thirds—of fiscal differences across school districts in the United States, after adjusting for differences in education price and student need, are caused by cross-state rather than within-state variations. Even if all within-state fiscal disparities were remedied, two-thirds of expenditure differences across school districts in the United States would still exist. Thus, the traditional focus on within-state disparities only is short-sighted if the goal of more fiscal equality is to be attained.

Regarding the issue of fiscal adequacy, Odden and Busch (1998) show that in several states, few if any districts would have adequate revenues to finance a school-wide, proven effective strategy if the state raised spending to the state median or even to the highest spending district. Odden and Busch analyzed the level of spending that would be required at the district level in all school districts in the country to provide school sites with a level of revenue that would allow them to finance an effective school-wide design that cost $350,000 above the core; such a level of expenditure would fund either the Success for All/Roots and Wings or the Modern Red Schoolhouse program (Odden, 1997). Their analysis assumed districts would spend 85 percent of district operating revenues at each school site. The school design costs were minimal, providing the core of one principal and 20 teachers for every group of 500 students, an additional $350,000 for the school design, and only a modest amount of teacher

preparation time. In many schools across the country, substantially more resources than this minimum is typically provided (see also Odden & Busch, 1998, Chapter 7).

Nevertheless, even at this low estimate of an adequate spending base, Odden and Busch (1998) found that most districts would need more revenues in many Southern and Western states, and that vast numbers of districts in other states would need additional funding. They found that the level of district expenditure required to support such an effective school design was very close to the national median, which was well above median spending levels in numerous states. Because of this finding, their analysis showed that there are many states in the country that would not be providing an adequate revenue base to schools even if they raised the spending of all districts up to the state median or even to the spending of the highest spending districts. They suggested that this implied a new federal fiscal role in education—providing funds to raise spending in all districts at least up to the national median or some minimal nationally adequate level.

Put differently, Odden and Busch showed that the issue of spending levels across states is a major problem from an adequacy perspective and that the recommendation in section two of this paper for raising district spending within a state to the state median might be adequate in Midwestern and Northeastern states where the research on adequate spending levels has been conducted, but that such a within-state strategy would not be adequate in several other states. They also argued that the only resolution to these cross-state fiscal inadequacies is some type of federal initiative, whereby the federal government would support, stimulate, or require states to provide an adequate fiscal base (roughly at the national median), combined with an adequate education tax effort (which would have to be carefully defined), and focused on teaching students to some nationally "comparable" high achievement standards (which would be facilitated by a national test or equivalent state tests).

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Appendix A
Status of School Finance in a Western State, 1996-97

Decile	Revenues Per Pupil	Assessed Value Per Pupil (at market value)	Local Property Tax Rate (percent)	State Aid Per Pupil
1	$4,421	$41,142	3.57	$2,771
2	4,443	41,246	3.58	2,844
3	4,504	45,947	3.54	2,716
4	4,534	33,599	3.55	3,209
5	4,601	63,663	3.58	2,086
6	4,622	52,542	3.72	2,545
7	4,685	59,984	3.70	2,264
8	4,723	50,259	3.52	2,936
9	5,029	85,370	3.59	1,958
10	6,106	100,938	3.32	3,719

Source: CPRE analysis of state data.

Appendix B
Status of School Finance in a Midwestern State, 1996-97

Decile	Revenues Per Pupil	Assessed Value Per Pupil (at market value)	Local Property Tax Rate (percent)	State Aid Per Pupil
1	$4,021	$62,853	2.51	$2,274
2	4,768	68,896	2.69	2,329
3	4,980	71,519	2.81	2,356
4	5,175	69,848	2.84	2,434
5	5,390	74,078	2.95	2,421
6	5,641	83,396	3.03	2,267
7	5,952	79,791	3.19	2,562
8	6,382	107,355	3.21	2,097
9	6,733	84,979	2.97	3,363
10	7,876	148,068	3.26	1,998

Source: CPRE analysis of state data.

End Notes

1. The data only show local property tax revenues and state equalization aid for these states and exclude other sources of revenue that in state B can average $800 per student. The data also are only for K-12 districts in the three states. The tables are intended to show the final results of school finance reforms implemented over several years. The school finance structure has not changed substantively in any of the states since 1995, though in state C, substantial state revenue has replaced local revenues, but because of spending controls, spending differences have not been altered much.

2. This section draws heavily from Odden & Clune (1998).

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